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IS 4816 (1987): Permanent Magnetic Chucks [PGD 2: Machine Tool Elements and Holding Devices]

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IS : 4816 - 1987

(Reaffirmed 2001)

Indian Standard

SPECIFICATION FOR PERMANENT MAGNETIC CHUCKS

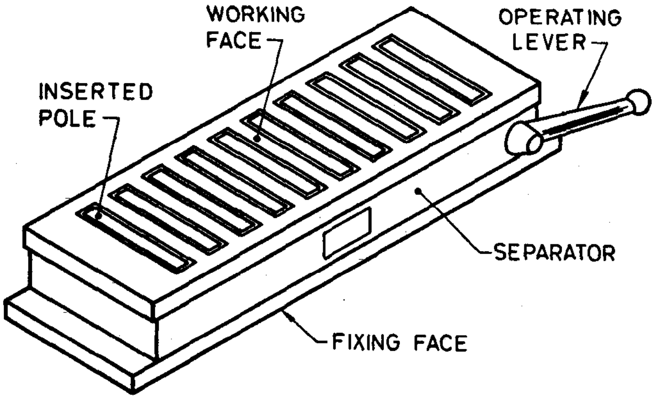
(*Second Revision*)

Machine Tools, Machine Tool Elements and Woodworking Machines Sectional Committee, EDC 11; and Chucks Subcommittee, EDC 11 : 5 [Ref : Doc : EDC 11 (4317)]

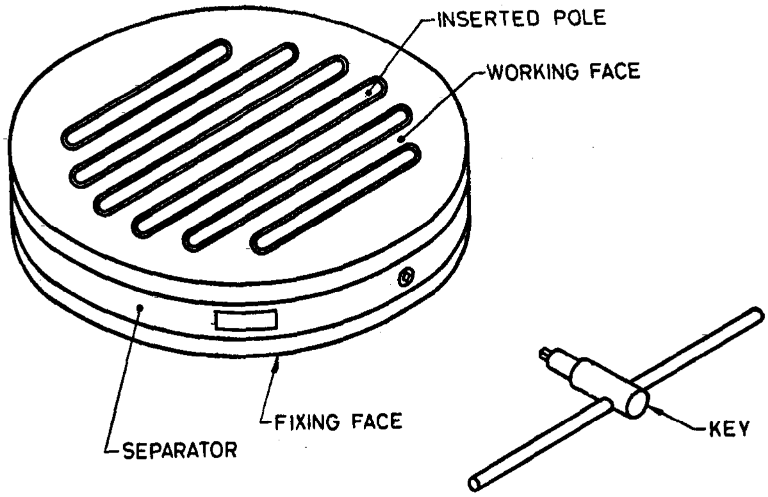
1. Scope — Covers dimensions and other requirements for permanent magnetic chucks.

2. Nomenclature

2.1 *Rectangular Permanent Magnetic Chucks*



2.2 *Circular Permanent Magnetic Chucks*



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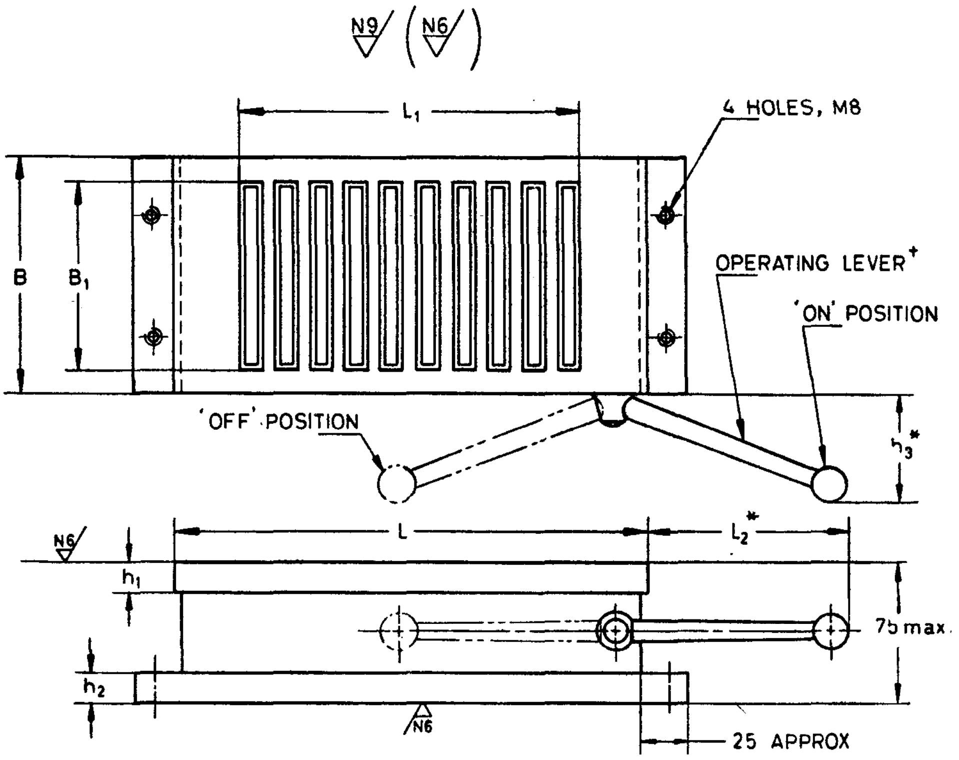
3. Dimensions

3.1 *Rectangular Permanent Magnetic Chucks*



4 Nos. tapped holes are provided on the bottom plate for all the sizes of rectangular chucks for lifting purpose.

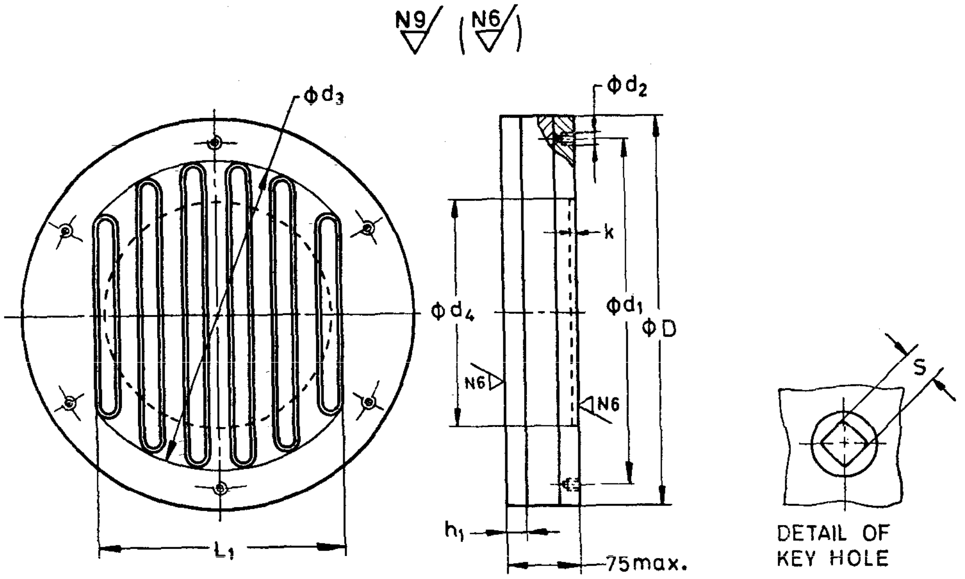
All dimensions in millimetres

Nominal Size $B \times L$	B_1 Min	L_1 Min	h_1 Min	h_2 Approx
125 × 250	100	180	16	16
150 × 300	120	220	16	16
150 × 350	120	270	16	16
150 × 450	120	370	18	16
200 × 600	160	520	18	16
250 × 1 000	210	900	20	20
250 × 1 500	210	1 400	20	20

*Dimensions h_3 and L_2 shall be at the discretion of the manufacturer.

†For chucks of nominal sizes 250×1 000 and 250×1 500 mm, more than one operating lever may be provided which shall be subjected to agreement between the manufacturer and the purchaser.

3.2 *Circular Permanent Magnetic Chucks*



6 Nos. tapped holes are provided on the periphery of circular chucks of sizes 315 mm and above for lifting purpose.

All dimensions in millimetres

Nominal Size	d_1		d_2	d_3	d_4	k	L_1	h_1	S
D	Size	Tol.			H7	*Min*	*Min*	*Min*	D12
100	83	±0·25	M8	70	70	4	50	12	6
160	140	±0·30	M10	125	125	4	100	16	6
200	176	±0·30	M10	160	160	4	125	18	6
250	224	±0·35	M12	200	200	4	160	18	8
315	286	±0·40	M16	250	260	4	200	20	8
400	362	±0·40	M16	315	330	4	250	20	8
450	408	±0·40	M16	350	350	4	280	20	8

Note — Dimensions of key for circular permanent magnetic chucks shall be according to IS:2989-1980 'Keys for lathe chucks (*first revision*)'.

4. Designation

4.1 A rectangular permanent magnetic chuck of nominal size 150 × 300 mm shall be designated as:

Rectangular Permanent Magnetic Chuck 150 × 300 IS:4816.

4.2 A circular permanent magnetic chuck having nominal size 250 mm shall be designated as:

Circular Permanent Magnetic Chuck 250 IS : 4816.

5. General Requirements

5.1 The fixing face and the working face of both rectangular and circular permanent magnetic chucks shall be flat and permissible error in flatness shall be 0·01 mm/300 mm in all directions (concave only). In case of chucks smaller than 300 mm in either length or diameter, as the case may be, the permissible error in flatness shall also be 0·01 mm on actual length or diameter of the chuck (concave only).

5.2 The working face and the fixing face shall be parallel within 0·04 mm/300 mm.

5.3 The chucks shall be leakproof against seepage of coolant and shall be free from defects, such as cracks, dents and scours.

5.4 The residual magnetism shall be such as to enable the job to be lifted out with the exertion of normal force when the chuck is in the 'OFF' position.

6. Tests — For the purpose of this test, a test piece, made of low-carbon magnetic soft steel and having dimensions 75 × 75 × 40 mm shall be used. One face having dimensions 75 × 75 mm of the test piece which is to be kept in contact with the working face of the permanent magnetic chuck shall be smoothly ground. The test piece shall be placed near the middle of the working face of the permanent magnetic chuck and shall be pulled by a spring balance in a direction parallel to the working face of the chuck. The test piece shall not slip at a force of 365 N (36·5 kgf *approx*) indicated by the spring balance.

7. Preservation and Packing — The permanant magnetic chucks shall be given a suitable rust preventive treatment at the time of despatch and shall be packed in accordance with the best trade practice. While transportation, the chucks shall be in 'OFF' position.

8. Marking

8.1 The 'ON' and 'OFF' position shall legibly be marked on the permanent magnetic chucks.

8.2 The permanent magnetic chucks shall be marked at an appropriate place with the nominal size and manufacturer's name or trade-mark.

8.3 *Certification Marking* — Details available with the Bureau of Indian Standards.

EXPLANATORY NOTE

This standard was first revised in 1971. In the light of the experience gained by the industry during the period, the committee responsible for formulation of this standard decided to revise the same again.

In the present revision, the recess dimensions for the circular magnetic chucks have been specified. Two more sizes, one for rectangular and one for circular magnetic chucks have been included.

While revising this standard, assistance has been derived from JIS B 6157-1975 'Permanent magnetic chucks'.

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